

ART 34 AMDT

CLAIMS

1. Sensor unit for picking up mechanical vibrations, sound and ultrasound, with at least one piezoelectric foil strip (piezo strip) (1; 1'; 1'') as a sensor element, said piezo strip having signal wires (5) attached thereto for transporting out electrical signals representing vibration, sound or ultrasound picked up, characterized
- in that said piezo strip (1; 1'; 1'') at two opposite ends is held in flat support parts (3; 3', 13), and
 - in that at least one further strip (2; 2'; 12) for receiving vibrations and propagating them to said piezo strip is held in the same support parts so as to extend in a curved manner along said piezo strip and provide at least one space between the strips.
2. The sensor unit of claim 1, characterized in that the support parts are separate support pieces (3) with holding details (6) for the strips, e.g. pockets.
3. The sensor unit of claim 1, characterized by two such further strips (2, 2'), one outside each surface side of said piezo strip (1).
4. The sensor unit of claim 1, 2 or 3, characterized in that said further strip(s) (2, 2') is/are a little stiff, thereby automatically tending to tension said piezo strip (1).
5. The sensor unit of claim 4, characterized in that said further strip(s) (2, 2') is/are attached loosely to at least one of the support parts (3), by being inserted into a pocket (6).
6. The sensor unit of claim 1, characterized in that the space between said piezo strip (1') and said further strip (2) is occupied by a substance (4) having the ability to transfer pressure, e.g. a silicon substance, said piezo strip (1') and said further strip (2)

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being substantially symmetrically curved outward in a central area to bound said substance (4).

7. The sensor unit of claim 1,
5 characterized in that said support parts are constituted by welding
rims (13) for a bubble that consists of two semi-ovoid foil pieces (12), and that said
at least one further strip constitutes at least one of said two foil pieces.
8. The sensor unit of claim 7,
10 characterized in that said piezo strip (1; 1'') is arranged outstretched
in the space midway between the two foil pieces (12).
9. The sensor unit of claim 8,
15 characterized in that said piezo strip additionally is attached along
the whole welding rim and thereby constitutes a boundary between two closed
spaces.
10. The sensor unit of claim 8 or 9,
20 characterized in that at least one of the two bubble halves separated
by said piezo strip (1; 1'') is filled by a substance (9; 9') with the ability to transfer
pressure.
11. The sensor unit of claim 10,
25 characterized in that one of the substances (9, 9'') has a hardness
value of the same magnitude as body tissue in an area in and under the skin of a
topical listening area of a human body or animal body.
12. Vibration detector array comprising a number of sensor units arranged in a
substantially plane a x b matrix with a units arranged along one direction and b
30 units in a perpendicular direction in the plane, and with separate signal wires (5a,
5b, 5c) leading out from each separate sensor unit,
characterized in that each sensor unit is such as stated in any one of
the previous claims 2-6, and that each sensor unit is attached in a common
surrounding frame (8).

13. The vibration detector array of claim 12,
characterized in that said frame (8) is constructed with b parallel
openings in which a sensor units are mounted by means of a common support
5 piece (3') which constitutes a boundary edge for each opening, for one end of said
a sensor units, while the other end (3) of each one of said a sensor units hangs
freely in the opening.

14. Vibration detector array comprising a number of sensor units arranged in a
10 regular, substantially plane configuration, and with separate signal wires leading
out from each respective sensor unit,
characterized in that every sensor unit is such as stated in one of the
previous claims 7-11, and that a number of bubbles are placed in close
juxtaposition, with welding rims that are common for neighbour bubbles.

15 15. Use of at least one vibration detector array such as stated in claim 12, 13 or
14, as part of a garment (22; 24) which a person may wear for carrying out a
surveying auscultation examination.

20 16. Use of at least one vibration detector array such as stated in claim 12, 13 or
14, as a mat or a belt (27) for industrial vibration pickup analysis, said mat/belt
being equipped with suitable attachment means (28).